

Communicating Flood Risk in a Developing World



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National Flood Insurance Program (NFIP) and Floodplain Management Services (FPMS) Goals

- Reduce Potential Loss of Life and Property
- Flood Insurance Protection for Those Most at Risk
- Reduce Disaster Costs
- Protect Natural and Beneficial Values of Floodplains
- Heighten Public Awareness of Flood Risk

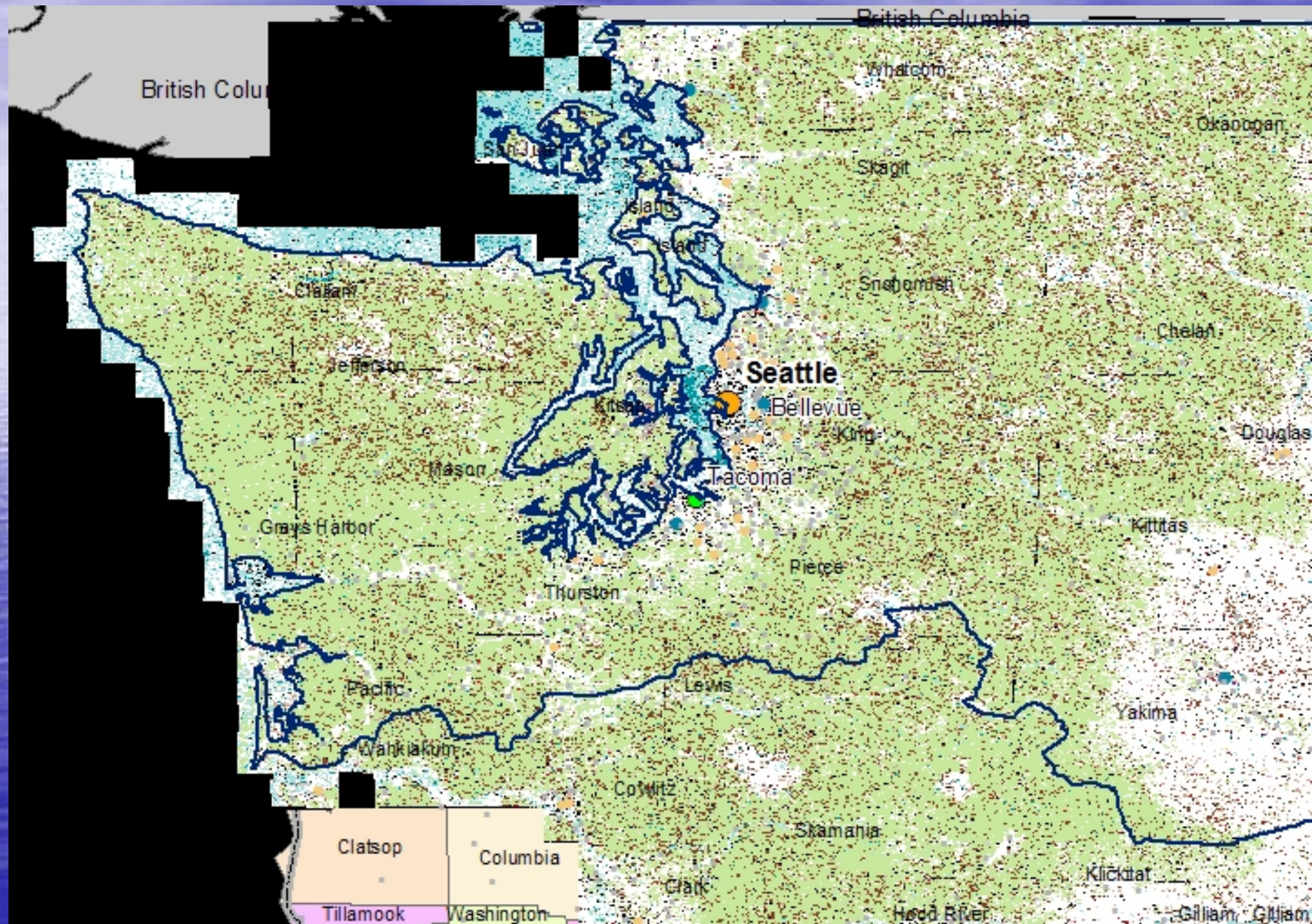


Changing Environment

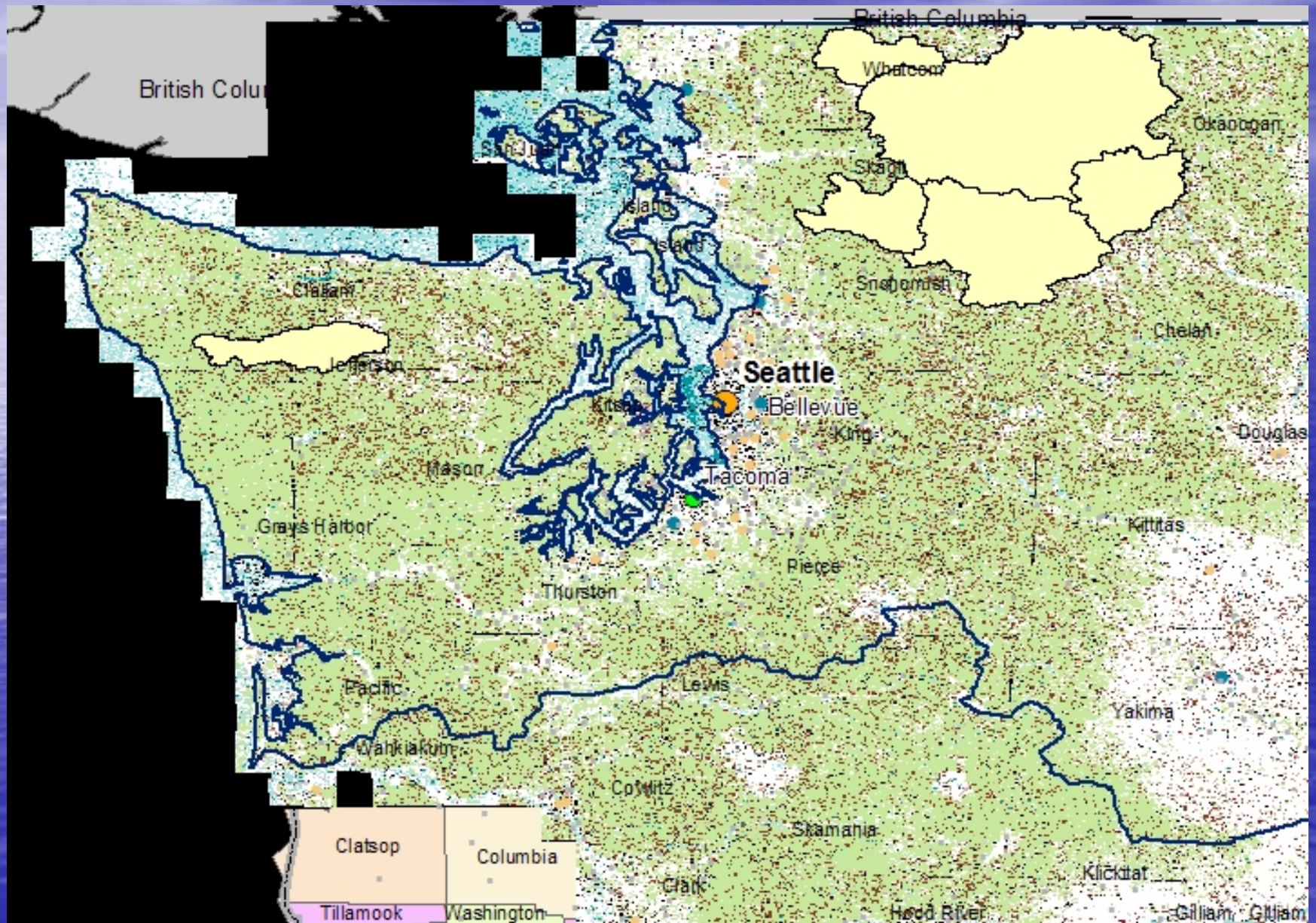
- Increasing Population
- Increased Volume of Data
- Expansion of the Players with River/Coastal Data
- Improved Modeling Capability
- Risk and Uncertainty Analysis
- Improved Visual Communication Capabilities
- Changes in Climate



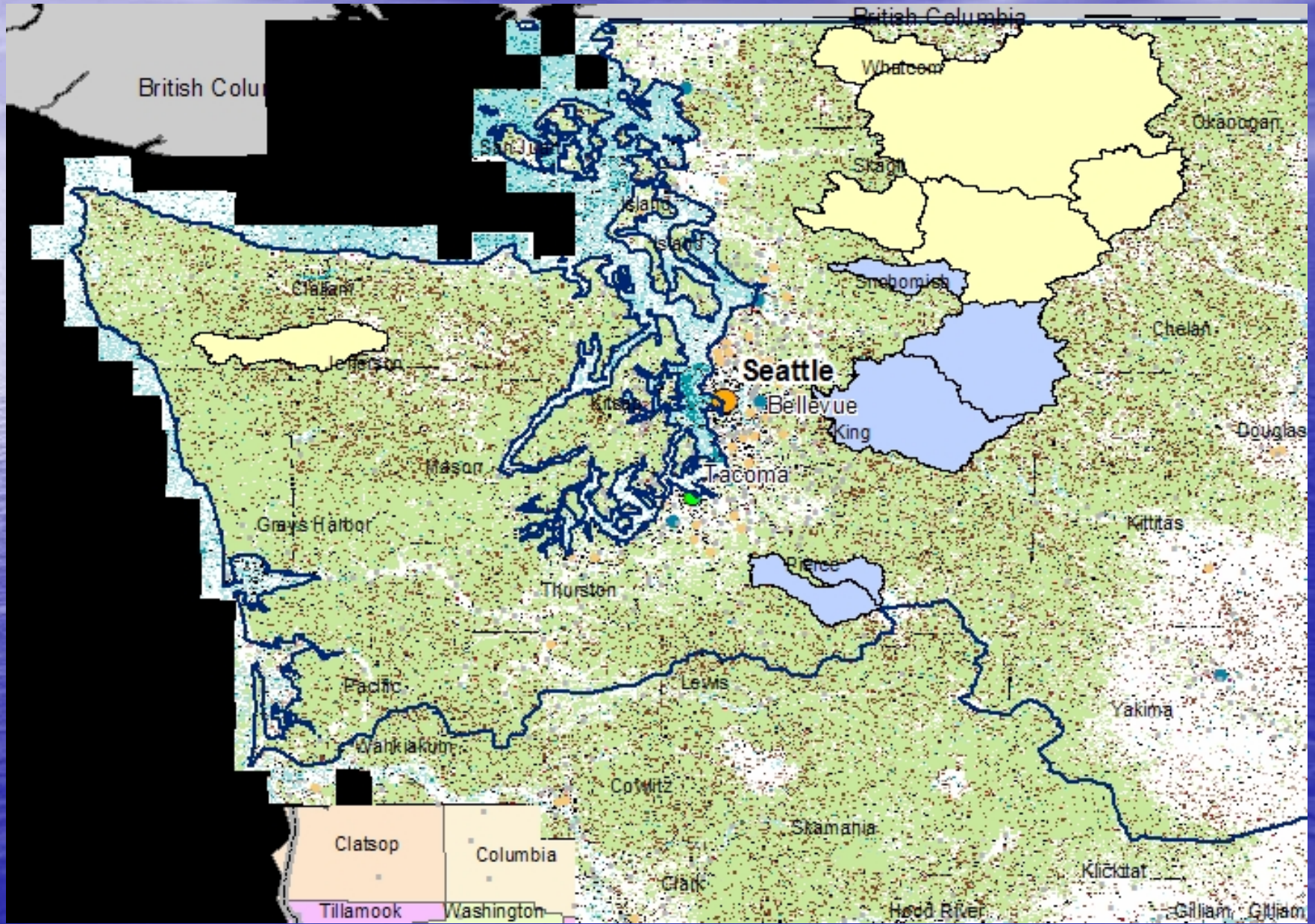
Seattle District Area



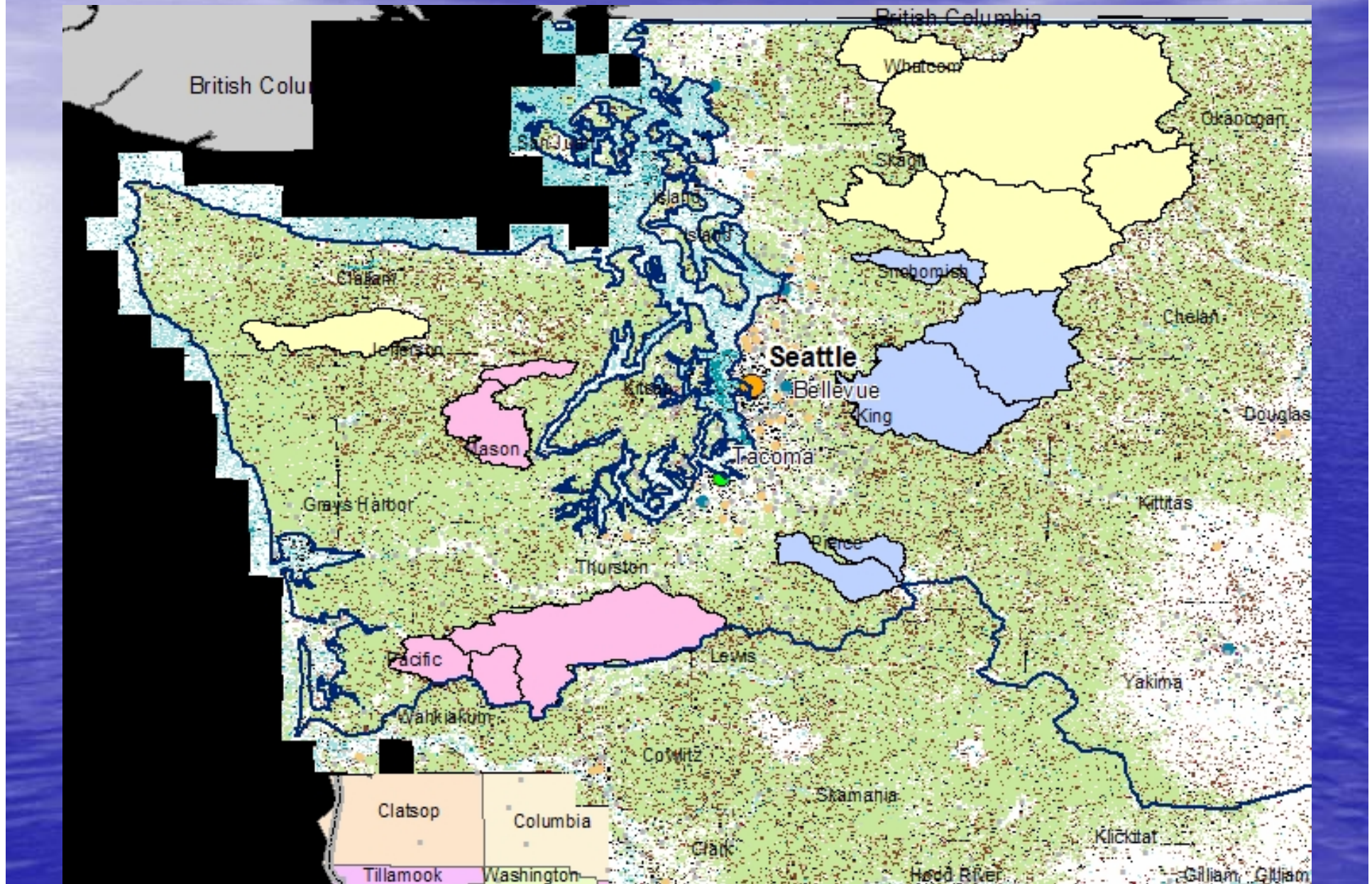
October 2003 Floods of Record



Plus November 2006 Floods of Record

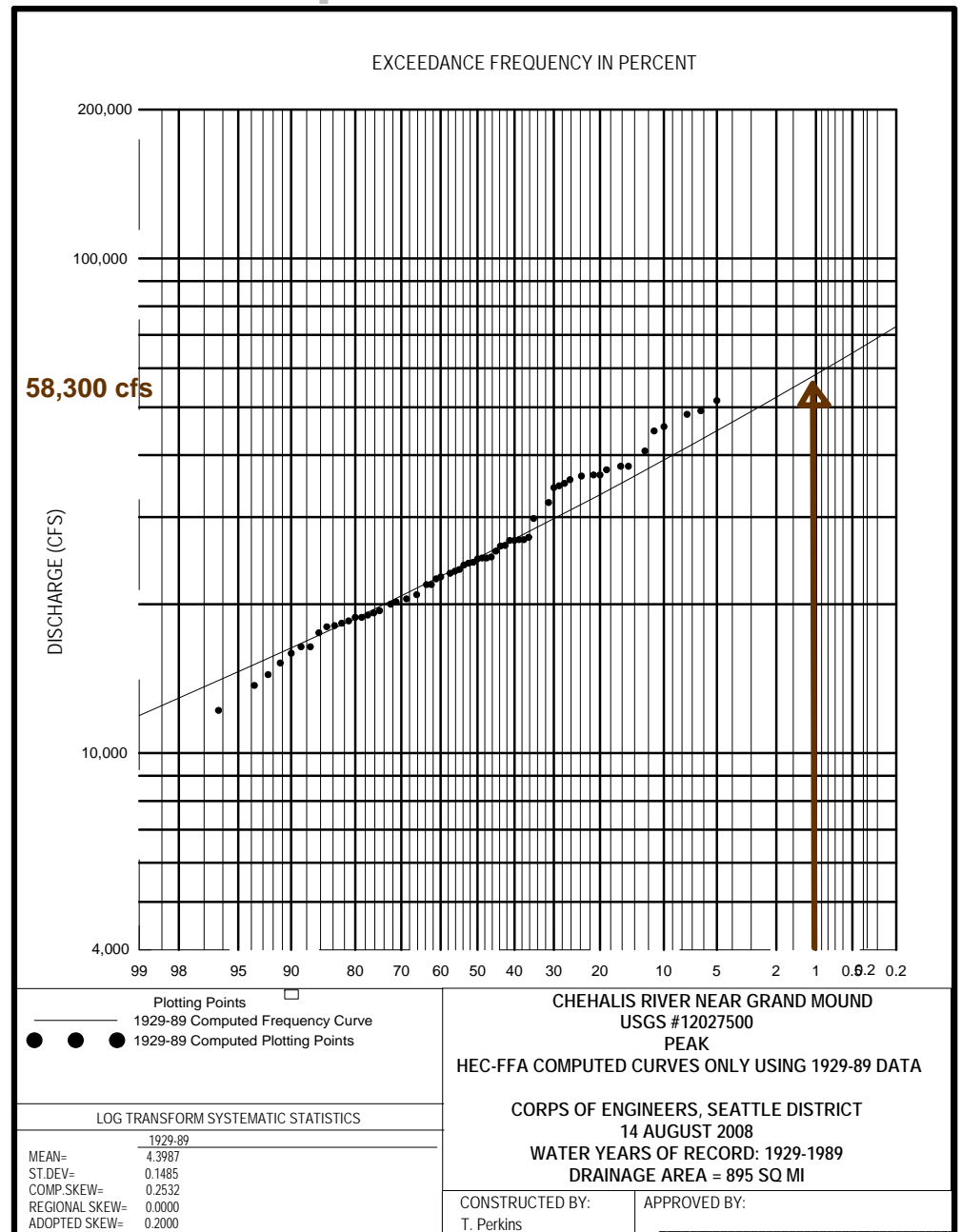


Plus December 2007 Floods of Record



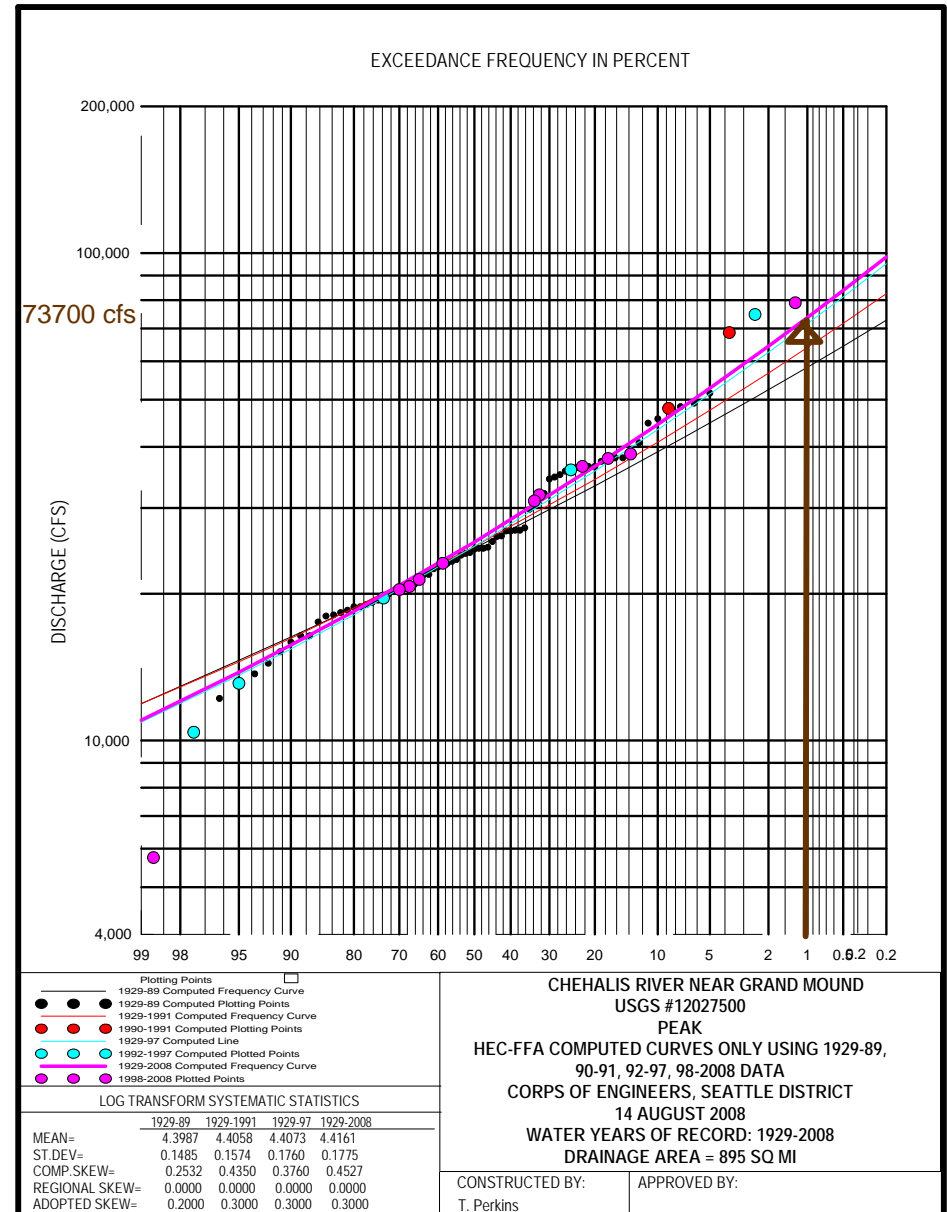
Adapting Flood Frequencies

- Chehalis River near Grand Mound from 1929-89
- 100-year Flow Estimate = 58,300 cfs



Adapting Flood Frequencies

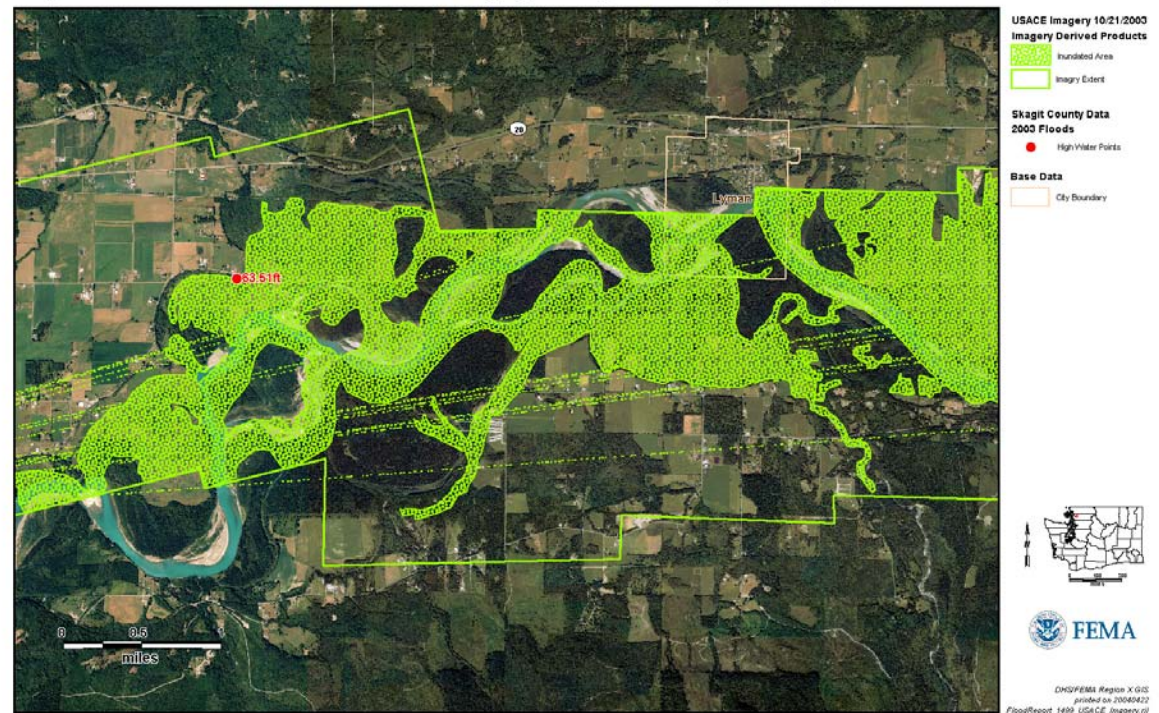
- Chehalis River near Grand Mound from 1929-2008
- 100-year Flow Estimate = 73,700 cfs



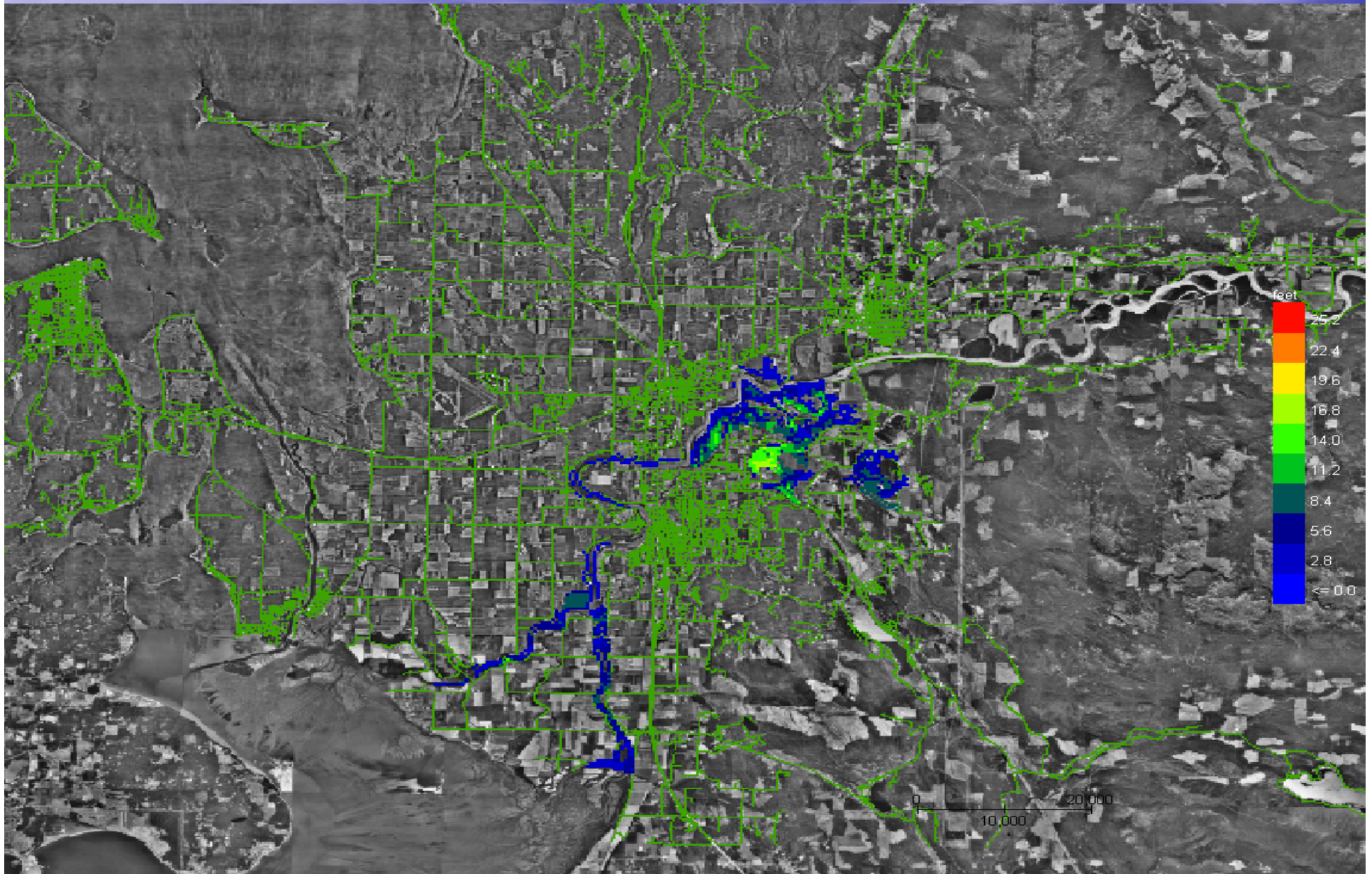
Entities with Water Information

- FEMA
- Corps
- USGS
- NWS
- RFC
- State Agencies
- County Public Works/Surface Water Management
- Cities/Towns

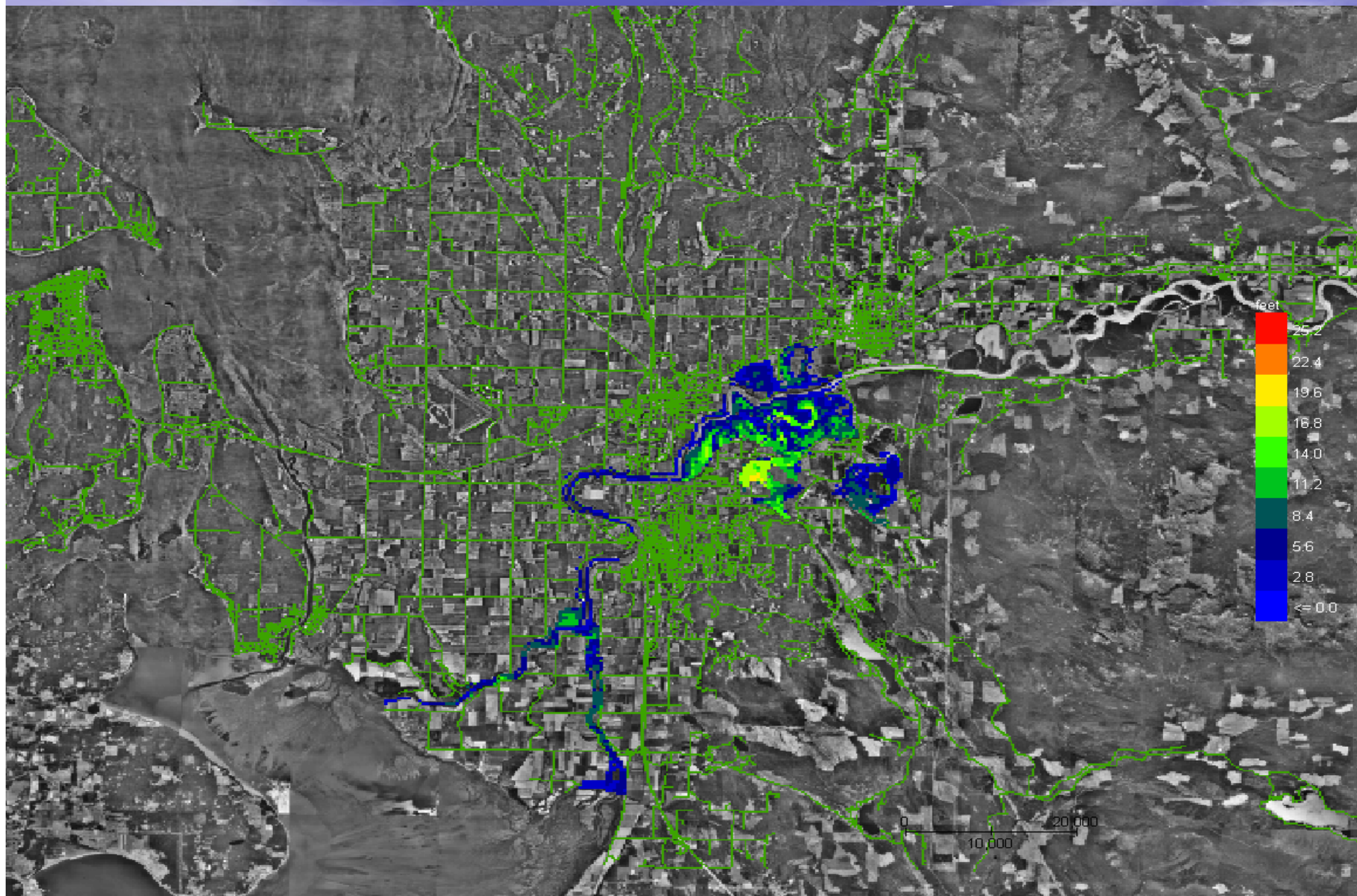
Map 2 - FEMA-1499-DR-WA - USACE Imagery - Skagit County, Washington



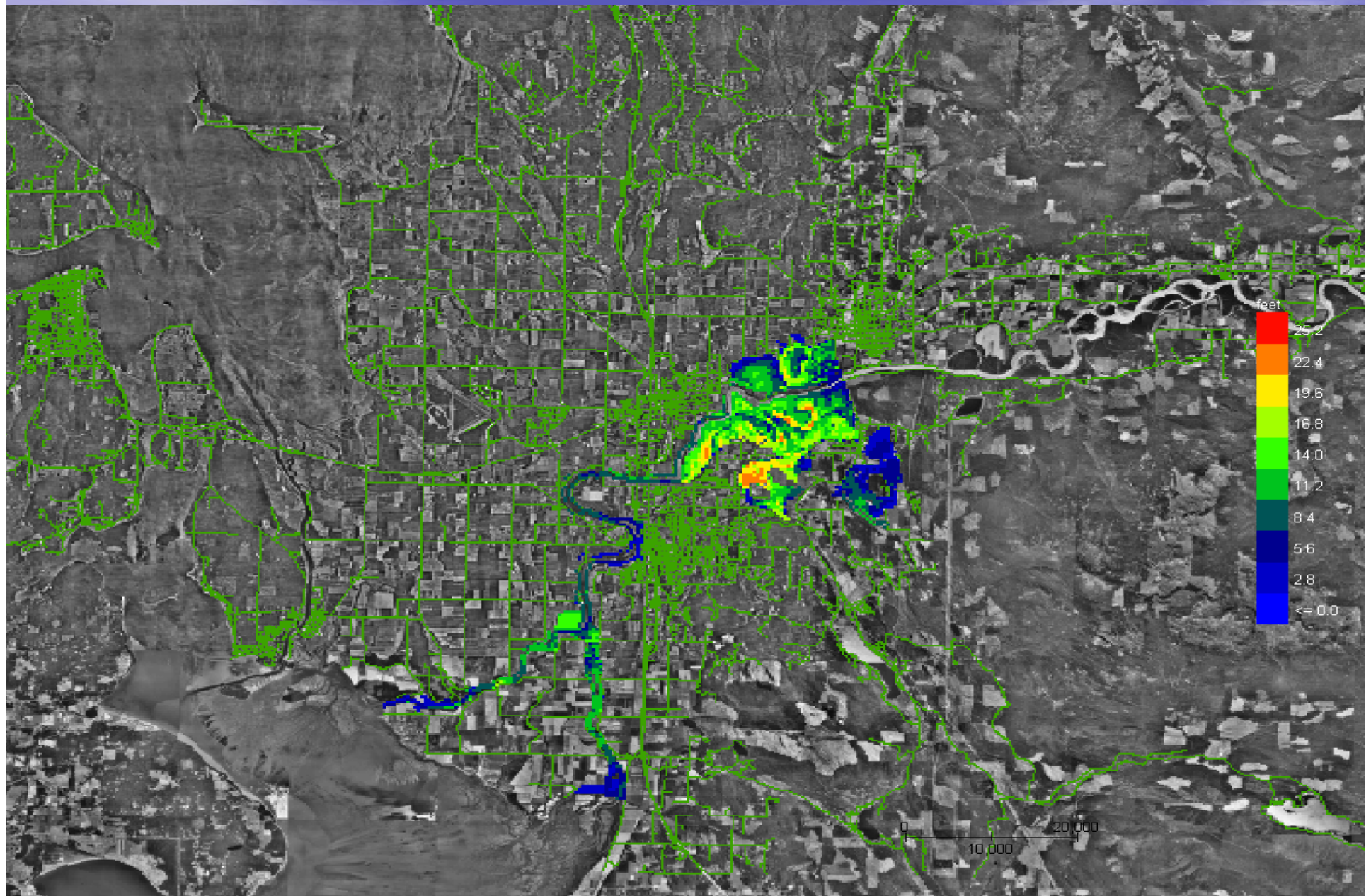
Improved Modeling Capability - 60th Hour



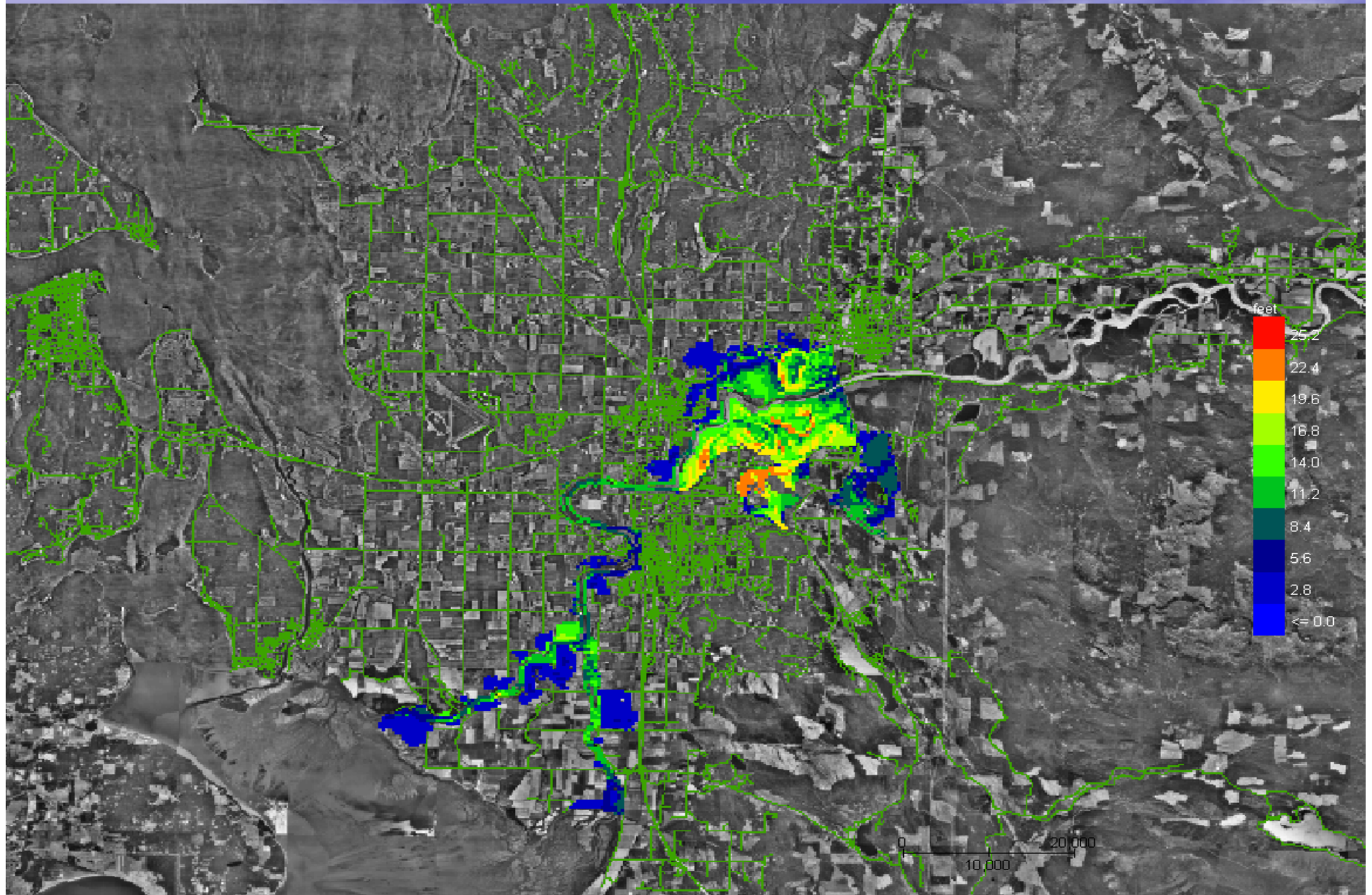
Improved Modeling Capability - 70th Hour



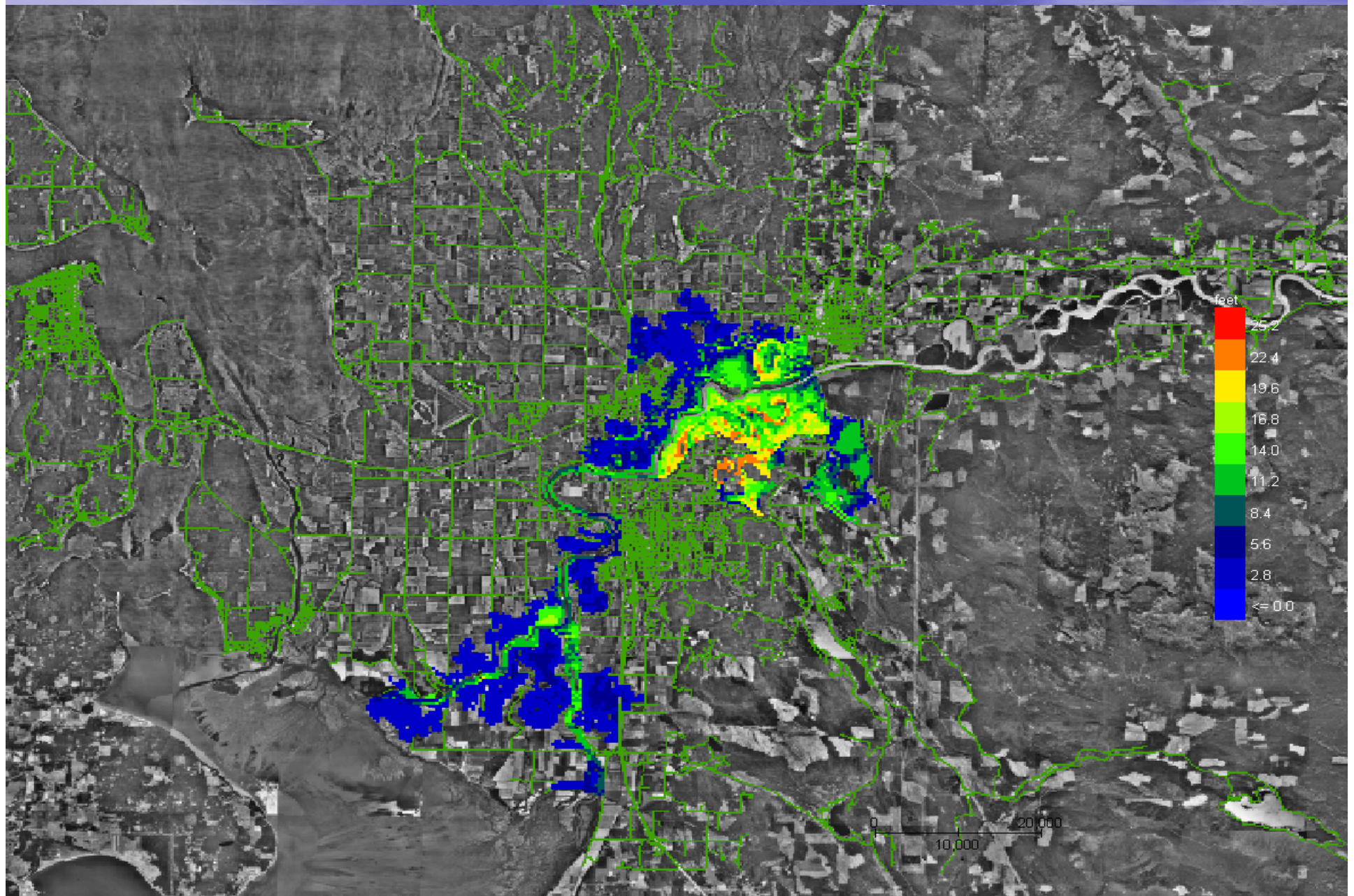
Improved Modeling Capability - 80th Hour



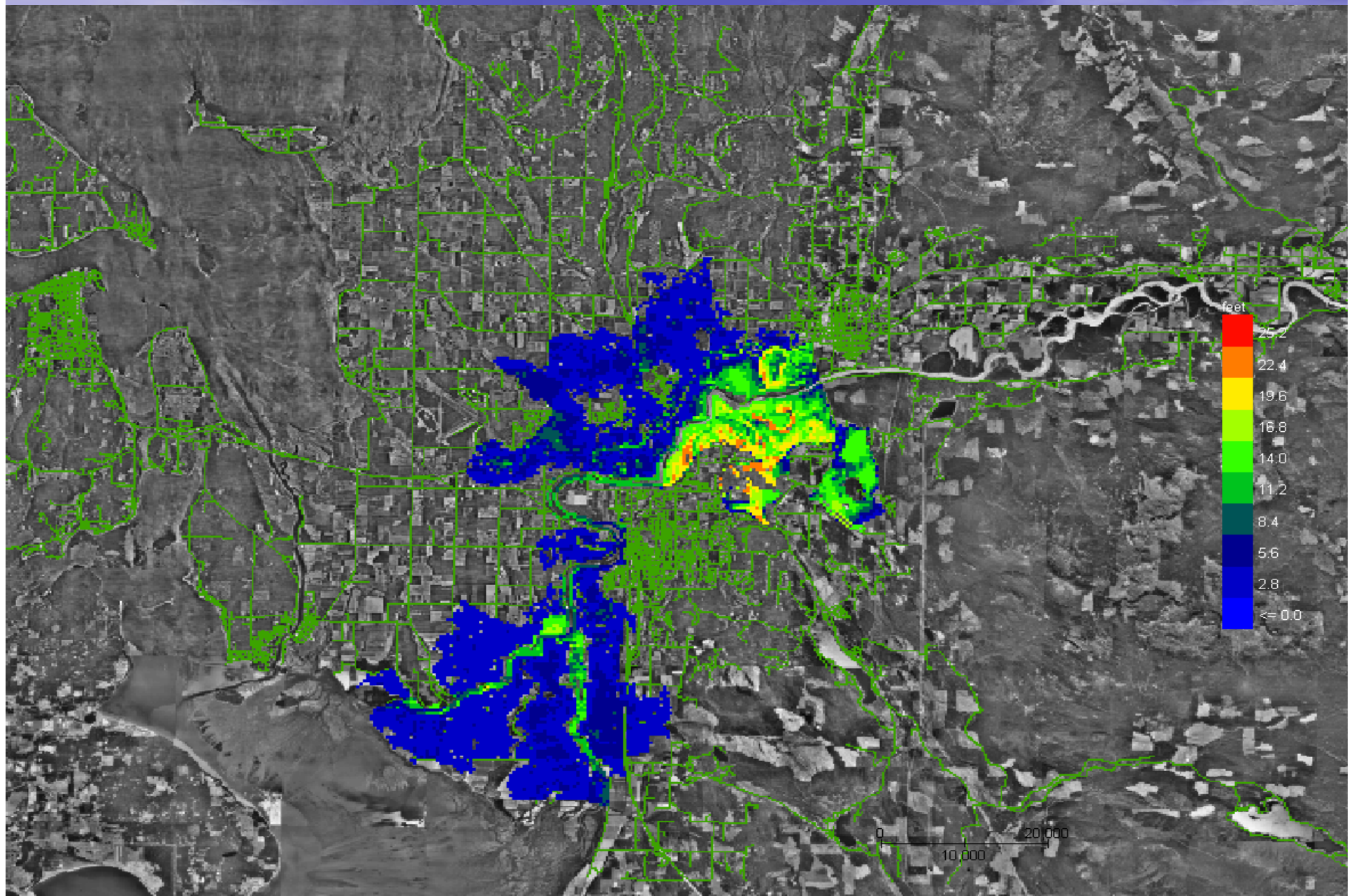
Improved Modeling Capability - 85th Hour



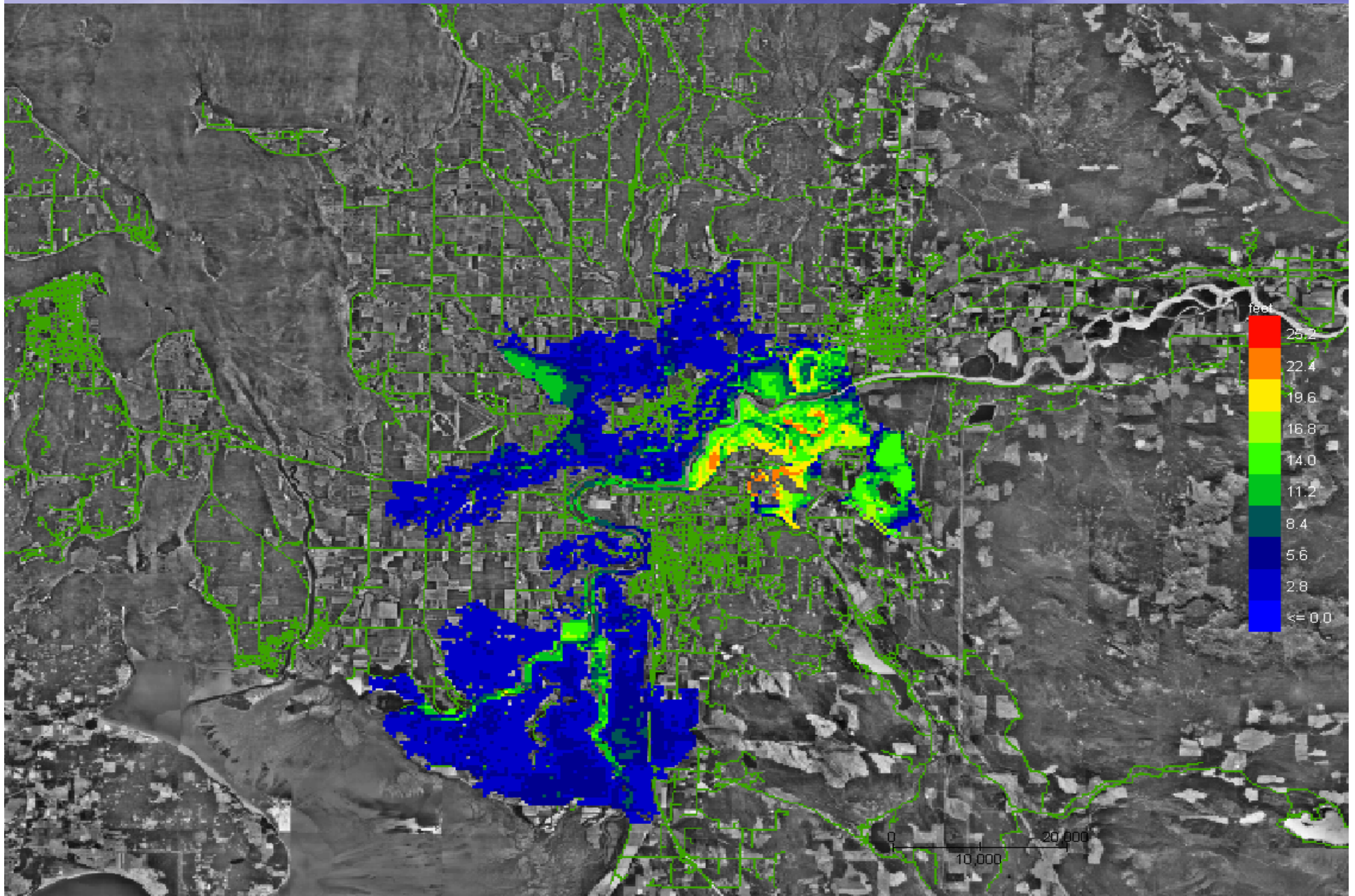
Improved Modeling Capability - 90th Hour



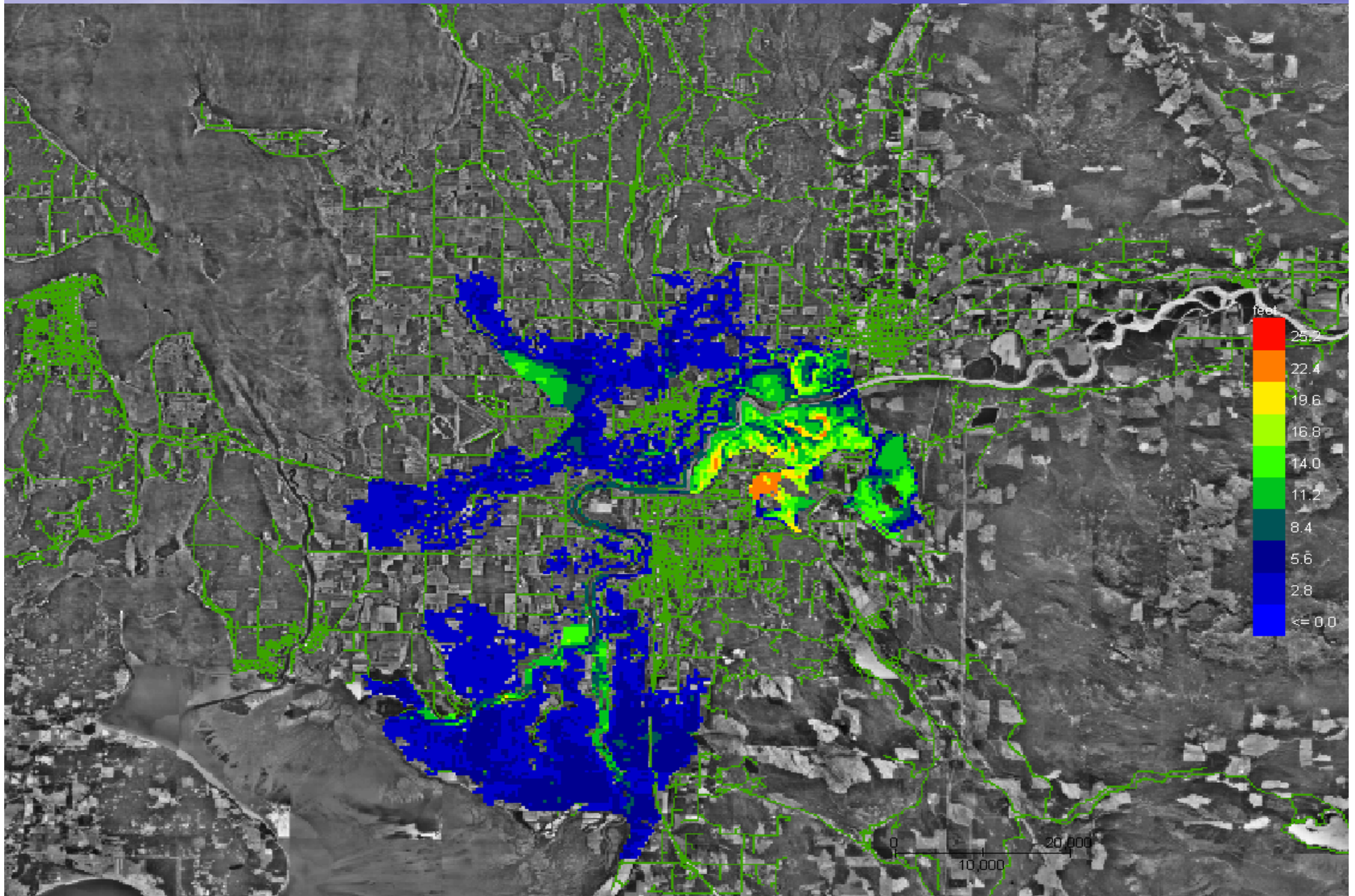
Improved Modeling Capability - 100th Hour



Improved Modeling Capability - 110th Hour



Improved Modeling Capability - 125th Hour



Risk and Uncertainty Analyses

Hydrologic Variables:

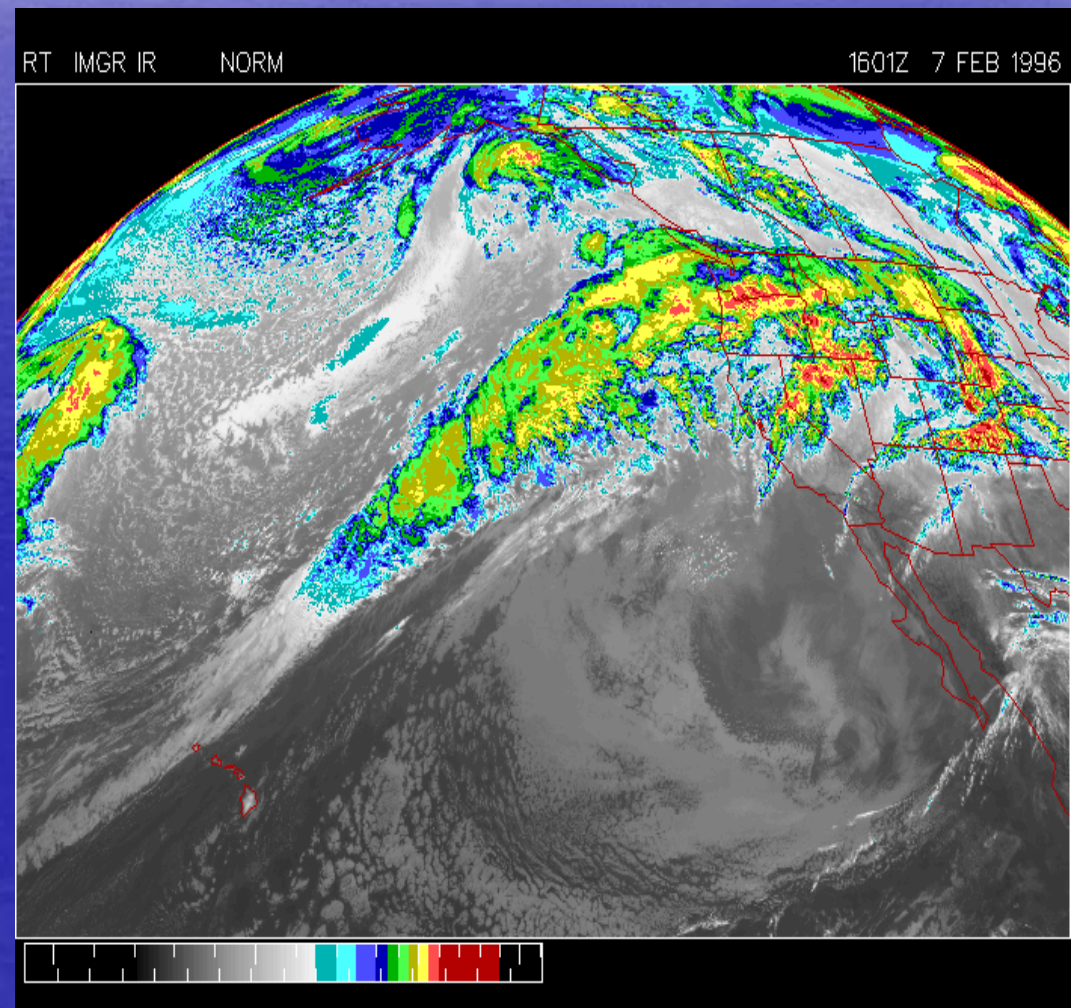
- Limited Gage Record
- Dam Operation

Hydraulic Variables

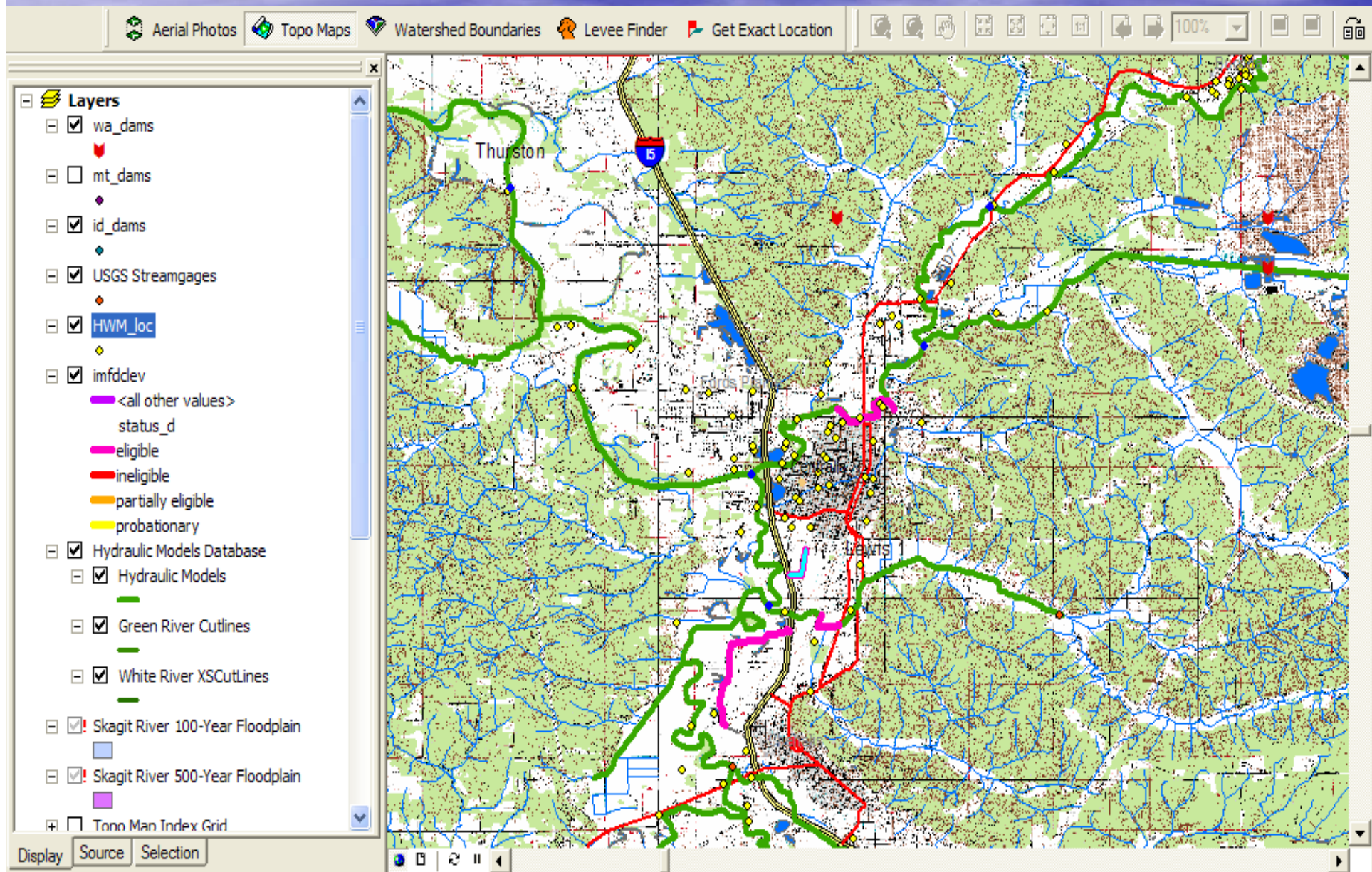
- Channel Roughness
- Woody Debris

Other Variables

- Levee Failure Points
- Fetch Distance
- Wind Direction



Data Collection and Storage



RiskMAP

Mapping, Assessment, & Planning

The Future



FEMA

RiskMAP - "Mapping"

- Mapping: Centered on the flood hazard data updated during Map Mod, but, will begin focusing on broader needs of other stakeholders – DOGAMI pilot
- Emphasis (\$) on Watersheds, Coastal flood hazard, land protected by levees, & physical, climatological, or methodological changes in FP
- Spatial study location identification, data maintenance, delivery, storage, etc
- Realize "digital vision"

RiskMAP – “Assessment”

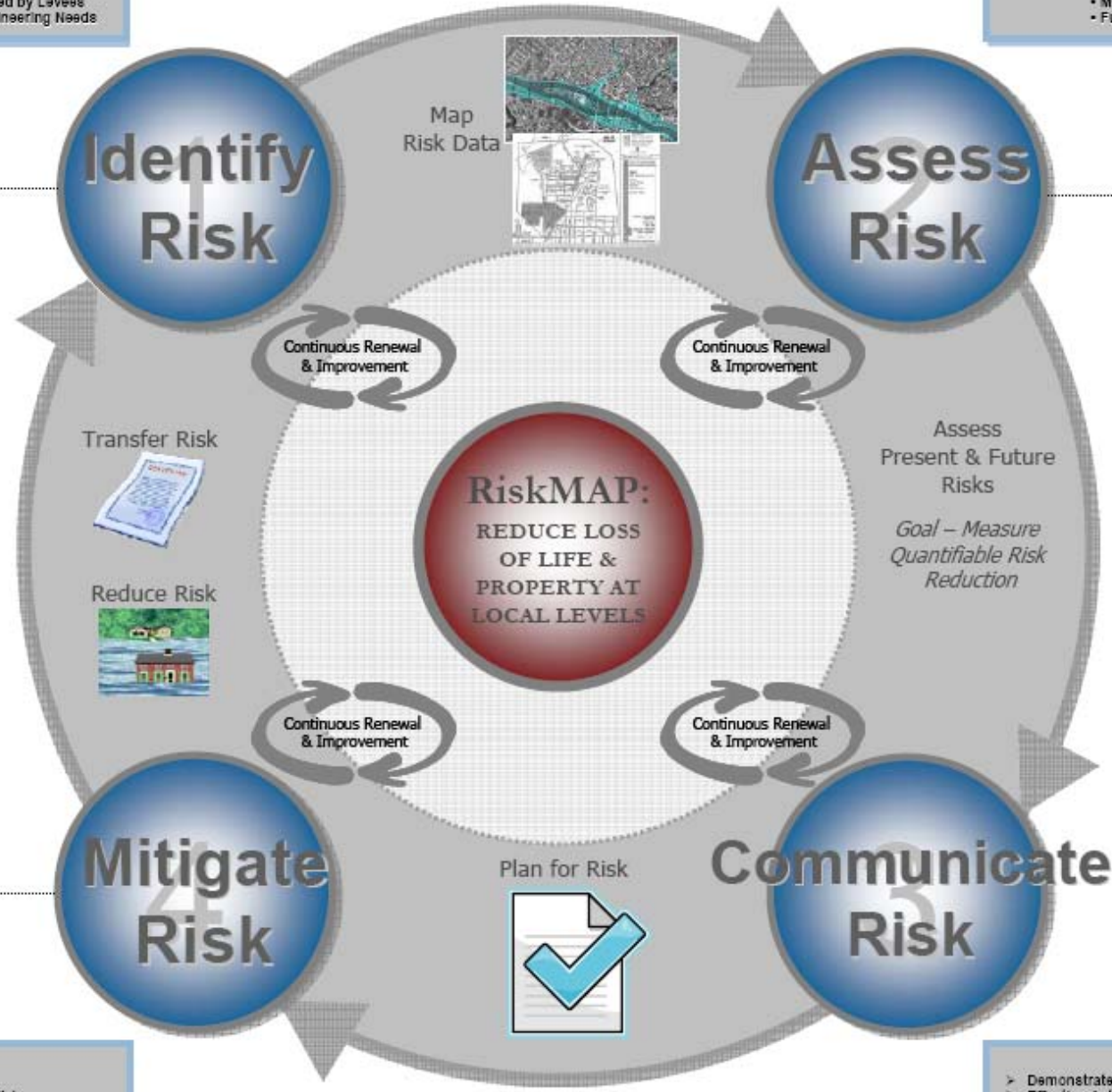
- Assessment: identify the relationship between the hazard and the people & built environment. The cornerstone of an effective HM Plan and require accurate data such as that provided by Map Mod
- Encourage more detailed, multi-hazard analysis, using tools like HAZUS MR3,
- Focus will be placed on future conditions, and scenario-based analysis
- Risk reduction must be quantifiable!

RiskMAP – “Planning”

- Planning: use risk assessments to identify hazard impacts and focus resources to address vulnerabilities.
- Demonstrable progress in mapping and planning have occurred over the last several years. The next step will be to implement strategies outlined in state and local HM plans to result in quantifiable risk reduction.

- Quality Products to Reduce Nation's Vulnerability
- Watershed Based Prioritization
 - Immediate Focus on:
 - Coastal Flood Studies
 - Mapping of Areas Impacted by Levees
 - Unmet Flood Hazard Engineering Needs

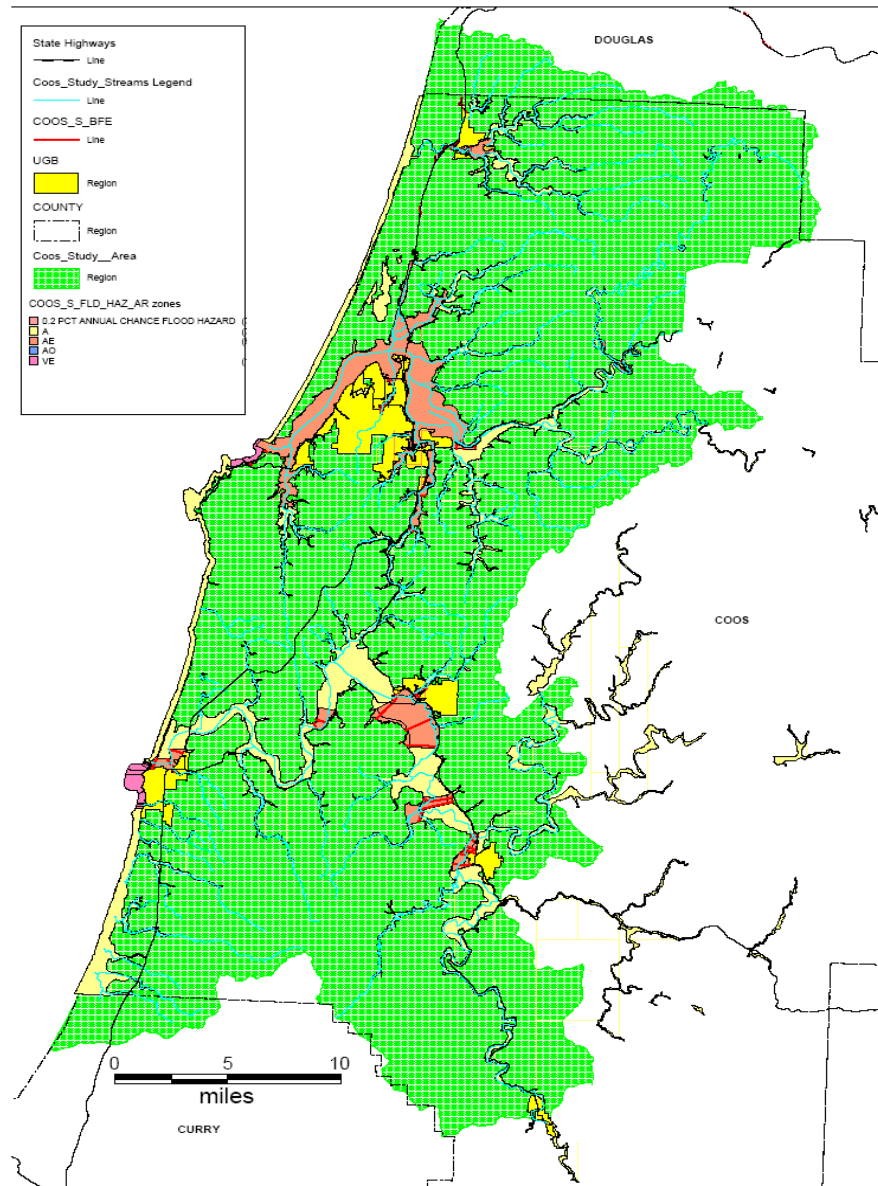
- Risk Assessments
- National Coverage
 - Layers Include:
 - 1% Assessments using Flood Hazard Data
 - More Detailed State/Local Assessments
 - Future Built Environment



- Local Action
- Effective Local Mitigation Activities
 - Continuous Communication about Risk
 - Build Local Ability to Assess Risks
 - Work to Measure Quantifiable Risk Reduction

- Mitigation Planning
- Demonstrate Progress in Planning Process
 - Effective Action on Mitigation Plans Communicate Risk (across State, Local, Public)
 - Full Utilization of RiskMAP Products

Partnerships



Green = existing
Magenta = ODF proposed
Peach = FEMA
yellow = UGB
Blue = major rivers
black hatch - NIA

